IN THE CLAIMS:

Please amend Claims 1-3, 5, 13, 28-30, 32, 35, 55, and 56 as follows.

1. (Currently Amended) A specific point detecting device for detecting ~~positions of one or more specific points~~ a position of a specific point on a target image, comprising:

first input means for inputting a target image photographed by first photographing means that is movable;

second input means for inputting an image photographed by second photographing means having a position and orientation that are known;

updating means for updating detection parameters for detecting said specific ~~points~~ point based on an image photographed by the second photographing means; ~~whose position and orientation are known; and~~

detecting means for detecting the ~~positions~~ position of said specific point ~~points~~ on said target image, based on the detection parameters updated by said updating means; and

estimation means for estimating viewpoint information of the first photographing means using the detected position of said specific point on said target image.

2. (Currently Amended) The device according to claim 1,

wherein said specific point is a ~~points are~~ static specific point ~~points~~ in a real space.

3. (Currently Amended) The device according to claim 2, ~~further comprising position/orientation calculation means for calculating~~ wherein the viewpoint information includes a position and orientation of the first photographing means, and ~~based on the positions of said specific points on said target image, detected by said detecting means~~

wherein said estimation means estimates the viewpoint information based on the detected position and known position information of said specific point.

4. (Previously Presented) The device according to claim 2, wherein a plurality of photographing units are utilized as the first photographing means.

5. (Currently Amended) The device according to claim 2, wherein the position and orientation of the second photographing means are ~~is~~ fixed.

6. (Cancelled)

7. (Previously Presented) The device according to claim 5, wherein there are a plurality of second photographing means, and

said updating means updates said detection parameters based on a plurality of images photographed by the plurality of second photographing means.

8. (Previously Presented) The device according to claim 7,

wherein said plurality of second photographing means photographs one or more specific points in an overlapping manner,

said updating means updates detection parameters for the same specific point respectively based on photographed images obtained by a plurality of second photographing means, and

said detecting means detects the specific point based on a plurality of detection parameters with respect to the same point.

9. (Previously Presented) The device according to claim 8,

wherein said detecting means uses detection parameters updated, by said updating means, based on the image photographed by the second photographing means nearest to the first photographing means.

10. (Cancelled)

11. (Cancelled)

12. (Cancelled)

13. (Currently Amended) The device according to claim 1,

wherein if there ~~is~~ are a plurality of detection parameters corresponding to the same specific point, said detecting means detects the specific point based on each detection parameter, and a detected position by the detection parameter having the best evaluation value of detection accuracy is adopted, thereby detecting the position of the specific point.

14. (Previously Presented) The device according to claim 1,

wherein said updating means comprises supplying means for supplying the position or area of said specific point on the image photographed by the second photographing means, and

extracts a partial image including said specific point from the image photographed by the second photographing means based on the position or area supplied by said supplying means, and updates said detection parameters based on the partial image.

15. (Cancelled)

16. (Previously Presented) The device according to claim 14,

wherein said supplying means retains as known information the three-dimensional position of said specific point and camera parameters of said second photographing means,

comprises specific point position calculating means for calculating the position of said specific point on the image photographed by the second photographing means, based on the three-dimensional position of said specific point and the camera parameters of said second photographing means, and

supplies the position calculated by said specific point position calculating means.

17. (Previously Presented) The device according to claim 14,

wherein said supplying means comprises feature extracting means for extracting a featured partial area from the image photographed by the second photographing means, and

supplies the position or area of said featured partial area extracted by said feature extracting means.

18. (Cancelled)

19. (Previously Presented) The device according to claim 1,

wherein said updating means updates detection parameters based on a plurality of photographed images photographed at a plurality of times by said second photographing means.

20. (Previously Presented) The device according to claim 1,

wherein said updating means determines timing in which update of detection parameters is performed, based on the contents of the image photographed by the second photographing means.

21. (Previously Presented) The device according to claim 1,

wherein said updating means performs update of detection parameters, if a degree of difference between a new image photographed by the second photographing

means and an image photographed by the second photographing means at the time of latest update of detection parameters exceeds a predetermined value.

22. (Previously Presented) The device according to claim 20,

wherein said updating means controls update of detection parameters, based on changes in detection parameters updated by said updating means.

23. (Original) The device according to claim 1,

wherein said updating means updates detection parameters at a predetermined time interval.

24. (Original) The device according to claim 1,

wherein said updating means comprises storing means for storing two or more kinds of detection parameters prepared in advance for each of said specific points, and

selecting means for selecting a detection parameter for detecting each specific point from two or more kinds of detection parameters stored in said storing means, in such a way as to follow changes in how the specific point is viewed, and

updates current detection parameters to detection parameters selected by said selecting means.

25. (Original) The device according to claim 24,

wherein said selecting means selects detection parameters based on the average intensity value of said target image.

26. (Original) The device according to claim 1,

wherein said detection parameter is a template image including said specific points, and

said detecting means performs template matching for said target image to detect the positions of said specific points on said image.

27. (Original) The device according to claim 1,

wherein said detection parameters are information expressing color and/or intensity unique to said specific points, and

said detecting means extracts areas having the color and/or intensity unique to said specific points from said target image, thereby detecting the positions of said specific points on the image.

28. (Currently Amended) A specific point detecting method of detecting ~~positions of one or more specific points~~ a position of a specific point on a target image, comprising:

the first inputting step of inputting a target image photographed by first photographing means that is movable;

the second inputting step of inputting an image photographed by second photographing means having a position and orientation that are known;

the updating step of updating detection parameters for detecting said specific point ~~points~~ based on an image photographed by the second photographing means; ~~whose position and orientation are known; and~~

the detecting step of detecting the ~~positions~~ position of said specific point ~~points~~ on said target image, based on the detection parameters updated in said updating step; and

the estimation step of estimating viewpoint information for the first photographing means using the detected position of said specific point on said target image.

29. (Currently Amended) The method according to claim 28,

wherein said specific point is a ~~points are~~ static specific point ~~points~~ in a real space.

30. (Currently Amended) The method according to claim 29, ~~further comprising a position/orientation calculation step of calculating~~ wherein the viewpoint information includes a position and orientation of the first photographing means, and ~~based on the positions of said specific points on said target image, detected in said detecting step~~

wherein said estimation step includes estimating the viewpoint information based on the detected position and known position information of said specific point.

31. (Previously Presented) The method according to claim 29, wherein a plurality of photographing units are utilized as the first photographing means.

32. (Currently Amended) The method according to claim 29, wherein the position and orientation of the second photographing means ~~is~~ are fixed.

33. (Cancelled)

34. (Previously Presented) The method according to claim 32, wherein there are a plurality of second photographing means, and

in said updating step, said detection parameters are generated, based on a plurality of images photographed by the plurality of second photographing means.

35. (Currently Amended) The method according to claim 34,

wherein said plurality of second photographing means photographs one or more specific points in an overlapping manner, and

in said updating step, detection parameters for the same specific point are generated respectively based on photographed images obtained by a plurality of second photographing means, and

in said detecting step, the specific point is detected, based on a plurality of detection parameters with respect to the same point.

36. (Previously Presented) The method according to claim 35,

said detecting step uses detection parameters updated, in said updating step, based on the image photographed by the second photographing means nearest to the first photographing means.

37. (Cancelled)

38. (Cancelled)

39. (Cancelled)

40. (Previously Presented) The method according to claim 28,

wherein in said detecting step, if there is a plurality of detection parameters corresponding to the same specific point, the specific point is detected based on each detection parameter, and a detected position from the detection parameter having the best evaluation value of detection accuracy is adopted, thereby detecting the position of the specific point.

41. (Previously Presented) The method according to claim 28,

said updating step comprising a supplying step of supplying the position or area of said specific point on the image photographed by the second photographing means, and

wherein a partial image including said specific point is extracted from the image photographed by the second photographing means based on the position or area supplied from said supplying step, and updates said detection parameters are generated based on the partial image.

42. (Cancelled)

43. (Previously Presented) The method according to claim 41,

wherein in said supplying step,

the three-dimensional position of said specific point and camera parameters of said second photographing means are retained as known information,

the specific point position calculating step of calculating the position of said specific point on the image photographed by the second photographing means, based on the three-dimensional position of said specific point and the camera parameters of said second photographing means is comprised, and

the position calculated in said specific point position calculating step is supplied.

44. (Previously Presented) The method according to claim 41,

wherein ~~in~~ said supplying step comprises

the feature extracting step of extracting a featured partial area from the image photographed by the second photographing means and

the position or area of said featured partial area extracted in said feature extracting step is supplied.

45. (Cancelled)

46. (Previously Presented) The method according to claim 28,

wherein in said updating step,

detection parameters are updated based on a plurality of photographed images photographed at a plurality of times in said second photographing step.

47. (Previously Presented) The method according to claim 28,

wherein in said updating step, timing in which update of detection parameters is performed is determined based on the contents of the image photographed by the second photographing means.

48. (Previously Presented) The method according to claim 28,

wherein in said updating step, update of detection parameters is performed, if a degree of difference between a new image photographed by the second photographing means and an image photographed by the second photographing means at the time of latest update of detection parameters exceeds a predetermined value.

49. (Previously Presented) The method according to claim 47,

wherein in said updating step, update of detection parameters is controlled, based on changes in detection parameters updated in said updating step.

50. (Original) The method according to claim 28,

wherein in said updating step, detection parameters are updated at a predetermined time interval.

51. (Original) The method according to claim 28,

said updating step comprising:

the storing step of storing two or more kinds of detection parameters prepared in advance for each of said specific points, and

the selecting step of selecting a detection parameter for detecting each specific point from two or more kinds of detection parameters stored in said storing step, in such a way as to follow changes in how the specific point is viewed,

wherein current detection parameters are updated to detection parameters selected in said selecting step.

52. (Original) The method according to claim 51,

wherein in said selecting step, detection parameters are selected based on the average intensity value of said target image.

53. (Original) The method according to claim 28 wherein said detection parameter is a template image including said specific points, and

in said detecting step, template matching is performed for said target image to detect the positions of said specific points.

54. (Original) The method according to claim 28,

wherein said detection parameters are information expressing color and/or intensity unique to said specific points, and

in said detecting step, areas having the color and/or intensity unique to said specific points are extracted from said target image, thereby detecting the positions of said specific points on the image.

55. (Currently Amended) A computer readable memory which stores a program for making a computer execute a specific point detecting method of detecting ~~positions of one or more specific points~~ a position of a specific point on a target image, wherein said method comprises:

~~an~~ a first input step of inputting a target image photographed by first photographing means that is movable;

a second input step of inputting an image photographed by second photographing means having a position and orientation that are known;

an updating step of updating detection parameters for detecting said specific point ~~points~~ based on an image photographed by the second photographing means; ~~whose position and orientation are known; and~~

a detecting step of detecting the ~~positions~~ position of said specific point ~~points~~ on said target image, based on the detection parameters updated in said updating step; and

an estimation step of estimating viewpoint information of said first photographing means using the detected position of said specific point on said target image.

56. (Currently Amended) A specific point detecting device for detecting ~~positions of one or more specific points~~ a position of a specific point on a target image, comprising:

~~an~~ a first input unit configured to input a target image photographed by a first photographing unit that is movable;

a second input unit configured to input an image photographed by a second photographing unit having a position and orientation that are known;

an updating unit configured to update detection parameters for detecting said specific point ~~points~~ based on an image photographed by [[a]] the second photographing unit; ~~whose position and orientation are known; and~~

a detecting unit configured to detect the ~~positions~~ position of said specific point ~~points~~ on said target image, based on the detection parameters updated by said updating unit; and

an estimation unit configured to estimate viewpoint information of said first photographing unit using the detected position of said specific point on said target image.